

REMARKS

In the Claims

Claim 10 is amended to enhance its clarity. One of skill in the art would have understood in light of the specification that the (A1) + (A2) blend being cografted with an unsaturated carboxylic acid feature of the claimed invention refers to an embodiment where both (A1) and (A2) are grafted with an unsaturated carboxylic acid. The specification on page 5, lines 38 to page 6, line 1, provides support by stating that the 'blend of (A1) and (A2) is grafted with an unsaturated carboxylic acid, that is to say (A1) and (A2) are cografted.' Applicants' definition of cografting clearly controls in this application as it is explicitly defined. However, the amendment is made because applicants now are aware of an alternative definition of cografting understood by those skilled in the art to refer to a polymer that is grafted with two different side chains, i.e., for example, an unsaturated carboxylic acid and a conjugated unsaturated ester. See, for example, Krebaum et al., cited in Adur et al. on column 3, lines 22-24 as US 3,882,194. In Krebaum, see column 6, the table appearing on lines 20 to 30, identifying the THPA(only) Graft Copolymer and also the THPA/DBM Cograft Copolymer. The amendment does not change the scope of the claim in any way, but is made to avoid possible, although unlikely, confusion by those of skill in the art.

Claims 20-22 are newly added and are directed at preferred embodiments. Support for the claims can be found, for example, on page 5, lines 20-21 and 31-34. No new matter is added.

Provisional Rejection Under Obviousness-Type Double Patenting

Claims 10-18 were provisionally rejected as allegedly unpatentable over claims 1-8 of copending Application No. 09/544,614. Applicants respectfully traverse the rejection. The Office Action alleges that the copending application discloses all of that is described in the present application with the exception of a slightly higher relative density between 0.935 and 0.980. In addition to this difference, however, the instant claims are distinguished in that, the melt flow index of the composition of the current application is 0.1 to 3, while that of the copending application is 5 to 100. The relative density of component B of the current application is 0.910 to 0.930, while that of the copending application is 0.930 to 0.950. The relative density of the blend of component A and B of the current application is 0.910 to 0.930, while that of the copending application is 0.930 to 0.950. The inventions of the two applications are patentably

distinct. There is no overlap or suggestion in the art that they are obvious variants. Thus, the reconsideration of the rejection is respectfully requested.

Further, because this is a provisional rejection, submission of a terminal disclaimer would be premature even if the claims were obvious variants of the same invention. The instant claims or Claims 1-8 of the copending application could be amended to moot the rejection. It should be noted that a provisional rejection cannot be maintained as the sole ground of rejection against an application. Thus, since all other rejections are believed overcome, this provisional rejection must be withdrawn.

Rejections under 35 USC § 103

Claims 10-19 were rejected under 35 USC § 103(a) as allegedly unpatentable over Adur et al. in view of Nagano.

The Office Action makes three obviousness allegations. The first two are directed at dependent claims and the last one alone is directed at the independent claim of the present application. Applicants will make remarks to the third obviousness rejection first as it is the only one directed at the independent claim.

The Office Action alleges that it would have been obvious to make the 5-30 parts of a polymer (A), 95-70 parts of polyethylene (B), the blend of polymer (A) and polymer (B) having a relative density between 0.910 to 0.930 and 0.915 to 0.920 and a melt flow index of between 0.1 and 3, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art in absence of unexpected results. Applicants respectfully disagree. The claimed invention is not merely an optimum value of a preexisting or suggested invention. None of the prior art references teaches or suggests the claimed composition, and none of the prior art references teaches or suggests any results to be achieved by varying the alleged components' quantity in the composition, the relative density and the melt flow index of the blend. Thus, one of skill in the art would not have any guidance in optimizing the composition, even if known or suggested (which is not admitted), because no results, or result effective features are taught by the reference. One of skill in the art would not know or have guidance in the expected properties to be obtained by varying the alleged components' quantity in the composition, or the blend's density and melt flow index.

The Office Action alleges that the reference teaches that the (A1) and (A2) blend is cogenerated with an unsaturated carboxylic acid while referring to col. 1, line 41 and col. 3, lines 4-6. However the reference only teaches that the polyethylene of density 0.910 to 0.970 is grafted. See column 1, lines 41-44, and not that both reference components (a) and (b) are grafted. On column 3, lines 4-6, the reference does teach that cogenerated monomers are also useful for preparing the graft copolymers, however this only refers to the graft copolymers, which are taught to be of component (a) and not both (a) and (b). Cogenerated as defined by the art referred to on the cited lines is defined above with respect to the amendment of claim 10, and is not the same as the grafting of both components. Thus, the allegation is in error. The reference does not teach component (A) of the present application.

Further, on the same point, the examples of the reference teach that the high density polyethylene is grafted in accord with the described invention. See examples, 1, 4, 6-22, 23-25, 40-41 and 42-43. Examples 28-29 have an embodiment where instead of the grafted high density polyethylene a low density polyethylene is grafted, however, note that even in this embodiment only one of the reference components (a) or (b) was grafted and not both. The grafted low density polyethylene was also used in examples 35, and 36-37, however never in a blend with another grafted polyethylene. Thus, the reference does not teach or suggest the grafting of both components (A1) and (A2) of the present invention as alleged.

The Office Action also alleges that Adur teaches a polyethylene (B) of relative density between 0.910 and 0.930 (col. 1, line 48 and col. 2, line 40). On column 1, line 47, the reference teaches that reference component (b) has a density of about 0.910 to 0.945. However the Office Action appears to allege that reference component (b) is the (A2) low density polyethylene component of the current invention on page 2 of the Office Action. It is unclear how one component of the reference provides suggestion or motivation for two components of the present invention, especially when one of them is grafted and the other is not. Further, the reference teaches on col. 2, line 40 the density of reference component (c), of the poly(α -olefin) as 0.88 to 0.93. Thus, the alleged ranges even within the reference do not refer to the same component of the invention therein. Thus, the reference does not teach or suggest a component (B) as alleged.

Because the independent claim should be allowable in light of the arguments presented above, it follows that all dependent claims should be allowable as well. Nevertheless applicants provide the following additional arguments for patentability of certain dependent claims.

The Office Action alleges that it would have been obvious to one of ordinary skill in the art to have provided Adur et al. with a binder (A1) that comprises at least 75 mol % of ethylene and an (A2) having at least 50 mol % of ethylene. This rejection appears to target dependent claim 13. Nagano does not provide any teaching or motivation for an at least 75 mol % of ethylene for (A1), and teaches contrary to an at least 50 mol % of ethylene content of (A2) as discussed next.

The Office Action alleges that Nagano on col. 2, lines 54-63 teaches a binder wherein (A1) comprises at least 75 mol% of ethylene. The reference discloses a 99-0% by weight of an unmodified ethylene polymer on the cited lines. However the cited lines discuss (A2). (A1) is discussed on the same column, lines 50-55, and the reference therein teaches 1-100% by weight of a graft-modified ethylene resin. The reference does not teach the alleged at least 75 mol% of ethylene, nor does it motivate one of skill in the art for such a selection.

The Office Action also alleges that Nagano teaches a binder wherein (A2) comprises at least 50 mol% of ethylene (col. 2, line 57). Nagano teaches 0-50 mol % of at least one alpha olefin on the cited lines, which is part of the 99-0 weight % of an unmodified ethylene polymer. 0-50 mol% is less than or equal to 50 mol % and is the opposite of at least 50 mol %. Further the allegation is also inaccurate with respect to what the percentage modifies.

Additionally, the Office Action makes numerous allegations that do not appear to relate to the obviousness rejections, nevertheless, applicants provide the following comments.

The Office Action alleges that Adur discloses that the content of grafted carboxylic acid of between 30 and 10,000 ppm. Applicants respectfully disagree. The reference teaches that the cogaft copolymers consist of about 0.05-25 wt% of the unsaturated acid or acid anhydride or mixtures thereof. This teaching is silent with regard to the blend of (A) and (B) having the alleged ppm content of unsaturated carboxylic acid, and provides no teaching or suggestion toward the claimed content.

The Office Action alleges that Adur discloses that the comonomer of (A1) is the same as that of (B) (col. 1, line 44 and col. 1, line 48). Applicants respectfully disagree. Col. 1, line 44 teaches that component (a) is a polyolefin such as polyethylene of density 0.910 to 0.970. Col. 1, line 48, reads as follows: “-unsaturated ester copolymer resin, and (c) a poly(α -ole-“. Applicants are not sure what the allegation is based on, but neither reference components (b), nor (c) appear to be taught to be the same as component (a).

The Office Action alleges that a polyolefin layer is directly attached to the binder side while citing col. 4, lines 6-15. The cited language does discuss layer combinations, however does not teach or suggest the alleged material. Neither of the terms "binder", nor "side", appear in the reference.

The Office Action alleges that Adur discloses that the structure further comprises an HDPE layer, a layer of EVOH, a layer of the binder and an HDPE layer while citing col. 1, lines 18-30 and col. 4 lines 5-15. Col. 1, lines 18-30 discuss the prior art, and do not refer to the structure of Adur's invention as alleged. Col. 4, lines 18-30 does discuss layer combinations, however does not teach or suggest the alleged material.

The Office Action alleges that Adur et al. discloses that the layer (E) is the saponified ethylene-vinyl acetate copolymer (col. 4 line 5). Column 4, line 5 teaches an ethylene-vinyl alcohol copolymer. The two are not the same.

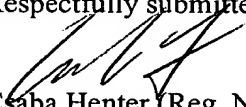
The Office Action alleges that Nagano teaches a binder wherein (A) has an ethylene content not less than 70mol% and the MFI_{10}/MFI_2 ratio is between 5 and 20 (col 2, line 68), where MFI_2 is the melt flow index at 190°C under a load of 2.16kg, measured according to ASTM D 1238, and MFI_{10} is the melt flow index at 190°C under a load of 10kg, measured according to ASTM D 1238, the intrinsic viscosity $[\eta]$ denoting the viscosity index in dl/g of a polymer measured in a decalin solution at 135°C (col. 3, lines 1-8). Nagano does not teach or suggest an ethylene content not less than 70 mol%. Nagano teaches an MFI_{10}/MFI_2 ratio of from 5 and 18, and not 5 to 20 as alleged (col 2, line 68). As discussed in the Reply dated March 7, 2002, this ratio can not be correlated with the MFI values of claim 10. Without knowing at least one of the MFI values, their ratio does not teach or suggest the absolute value of neither. The Office Action has not alleged and/or demonstrated otherwise.

Reconsideration of all the rejections is respectfully and courteously requested. Applicants believe that the claims are patentably distinct from the prior art, and that the claims are in a form ready for allowance, but if there are any residual issues which can be expeditiously resolved by a telephone conference, the Examiner is courteously invited to telephone Counsel at the number indicated below.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version With Markings To Show Changes Made**".

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,



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Version With Markings To Show Changes Made

In the Claims

Claim 10 has been amended as follows:

10. (Amended) A coextrusion binder comprising:

- 5 to 30 parts of a polymer (A) comprising a blend of a polyethylene (A1) of relative density between 0.910 and 0.940 and of a polymer (A2) selected from the group consisting of elastomers, very low-density polyethylenes and metallocene polyethylenes, wherein both (A1) and (A2) are grafted ~~the (A1) + (A2) blend being co-grafted~~ with an unsaturated carboxylic acid;

- 95 to 70 parts of a polyethylene (B) of relative density between 0.910 and 0.930;

- the blend of (A) and (B) having:

- a relative density of between 0.910 and 0.930,
- a content of grafted unsaturated carboxylic acid is between 30 and 10,000 ppm,

and

• an MFI (ASTM D 1238; 190°C/2.16 kg) is between 0.1 and 3 g/10 min., MFI standing for the melt flow index.

Claims 20-22 have been newly added.